

REMARKS

At the outset, Applicants appreciate the Examiner's thorough review and consideration of the subject application. The Non-Final Office Action of June 7, 2004, has been received and its contents carefully noted. Claims 1-99 were originally pending, claims 98 and 99 remain withdrawn from consideration. By this amendment, claims 1-3, 5-7, 10, 11, 14, 16-18, 21-23, 26, 28-30, 32, 33, 35, 37, 39, 41-46, 48-54, 56, 57, 61, 63-66, 70, 72, 74-76, 80-82, 86-89, 91-93, and 96 are amended. Support for these amendments are provided in at least Figures 1-13 and related text of the specification. No new matter has been added. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Allowable Subject Matter

Applicants appreciate the indication that claims 73-89 and 90-96 are allowed and the indication that claims 29-33 contain allowable subject matter. More specifically, claims 29-33 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Request for Information

The Examiner requested information under 37 CFR § 1.105 in the form of publications, patents, etc., which Applicants are aware of regarding columnar void network morphology formation. Applicants respectfully submit that, other than the information provided in the Information Disclosure Statement(s), the requested information is unknown and/or not readily available. See MPEP § 704.12(b)

Claim Objections

The Examiner objected to claims 22-23 as being in an improper multiple dependent format because multiple dependent claims must be in the alternative format. Applicants respectfully submit that amended claim 22 obviates the objection and respectfully request withdrawal of the objection.

Rejections Under 35 U.S.C. § 102

Claims 1-2 and 10-12 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 4,995,954 issued to Guilinger, *et al.* ("Guilinger"). Applicants respectfully traverse this rejection for at least the following reasons.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegall Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Claim 1 recites, *inter alia*,

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

The cited reference fails to teach or suggest at least these features. Rather, Guilinger is directed towards,

[a] structure ... submerged in the electrochemical cell and the defined areas of the silicon layer thereon are anodically biased by passing a current through the electrochemical cell for a time period sufficient to cause the defined areas of the silicon layer to become porous. *See Abstract.*

There is no teaching or suggestion of depositing a layer having a non-helical columnar structure. Accordingly, Applicants respectfully submit that claim 1 and claims 2, and 10-12, which depend from claim 1, are allowable.

Applicants request that rejection under 35 U.S.C. § 102 be withdrawn as a *prima facie* case of anticipation has not been established.

Claims 1-2, 10-12, 14-17, 21, 34, 37, 41-46, 50, 57, 64, 66, 69 and 72 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,242,863 issued to Xiang-Zheng, *et al.* ("Xiang-Zheng"). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites, *inter alia*,

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

The cited reference fails to teach or suggest at least these features. In contrast, Xiang-Zheng discloses,

[t]he fabricating steps including a) forming a buried low resistive layer under a predetermined diaphragm region; b) converting the low resistance layer into porous silicon by anodization of silicon in a concentrated hydrofluoric acid solution. *See Abstract.*

There is no teaching or suggestion of depositing a layer having a non-helical columnar structure as set forth in claim 1. Accordingly, Applicants submit that claim 1 and claims 2, 10-12, 14-17, 21, and 34, which depend from claim 1, are allowable.

Claim 37 recites, *inter alia*,

forming a layer of high surface area to volume ratio material having a non-helical columnar structure onto said substrate.

There is no teaching or suggestion for forming a non-helical columnar void structure as set forth in claim 37. Accordingly, Applicants submit that claim 37 and claims 41-46, and 50, which depend from claim 37, are allowable.

Claim 57 recites, *inter alia*,

forming a layer of high surface area to volume ratio material over a substrate having a non-helical columnar structure.

For at least similar reasons as discussed above with respect to claim 37, there is no teaching or suggestion of a forming a non-helical columnar structure as set forth in claim 57. Accordingly,

Applicants submit that claim 57 and claims 64, 66, 69, and 72, which depend from claim 57, are allowable.

Applicants respectfully submit that rejection under 35 U.S.C. § 102 be withdrawn as a *prima facie* case of anticipation has not been established.

Claims 1-2, 10-12, 14-16, 21, 34-37, 41-46, 50, 57, 61, 64, 66 and 72 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by “Using porous silicon as a sacrificial layer” issued to Steiner, *et al.* (“Steiner”). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites, *inter alia*,

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

Steiner fails to teach or suggest at least these features. Rather, Steiner discloses at col. 2, p. 32,

[p]orous silicon is produced by electrochemical dissolution of silicon in HF. If the silicon in HF is not normally attached by acid. If an electrical current is applied, silicon atoms will be dissolved from the crystal due to the charge carries supplied by the current. Under certain parameters, pores develop. The surface of the crystal is transformed into a highly porous film, which has the morphology of a sponge. Since the crystal acts as the anode, the process of generating porous silicon is called anodization.

There is no teaching or suggestion for depositing a layer having a non-helical columnar structure as set forth in claim 1. Accordingly, Applicants submit that claim 1 and claims 2, 10-12, 14-16, 21, and 34-36, which depend from claim 1, are allowable.

Claim 37 recites, *inter alia*,

forming a layer of high surface area to volume ratio material having a non-helical columnar structure onto said substrate.

There is no teaching or suggestion for forming a non-helical columnar structure as set forth in claim 37. Accordingly, Applicants respectfully submit that claim 37 and claims 41-46, and 50, which depend from claim 37, are allowable.

Claim 57 recites, *inter alia*,

forming a layer of high surface area to volume ratio material over a substrate having a non-helical columnar structure.

For at least similar reasons as discussed above with respect to claim 37, there is no teaching or suggestion for forming a non-helical columnar structure as set forth in claim 57. Accordingly, Applicants respectfully submit that claim 57 and claims 61, 64, 66 and 72, which depend from claim 57, are allowable.

Applicants request that rejection under 35 U.S.C. § 102 be withdrawn as a *prima facie* case of anticipation has not been established.

Claims 1-2, 10-12, 14-17, 21-22, 37, 41-45, and 50-53 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by “ELTRAN; SOI-Epi Wafer by Epitaxial Layer Transfer from Porous Si” issued to Yonehara, *et al.* (“Yonehara”). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites, *inter alia*,

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

The cited reference fails to teach or suggest at least these features. Applicants do not acquiesce that this reference is relevant prior art as the effective date of the reference is not apparent.

However, even assuming *arguendo* that Yonehara is prior art, the reference is still materially deficient. More specifically, Yonehara discloses, “machines are the anodizer that produces porous Si.” *See* col. 1. However, there is no teaching of depositing a layer having a non-helical columnar structure as recited in claim 1. Accordingly, Applicants respectfully submit that claim 1 and claims 2, 10-12, 14-17, and 21-22, which depend from claim 1, are allowable.

Claim 37 recites, *inter alia*,

forming a layer of high surface area to volume ratio material having a non-helical columnar structure onto said substrate.

There is no teaching or suggestion for forming a layer having a non-helical columnar structure as set forth in claim 37. Accordingly, Applicants respectfully submit that claim 37 and claims 41-45, and 50-53, which depend from claim 37, are allowable.

Applicants request that rejection under 35 U.S.C. § 102 be withdrawn as a *prima facie* case of anticipation has not been established.

Claims 1-2, 10-12, 14-16, 18, 20, 21, 34, 37, 41-50, 57, 61, 64, 66, 68, and 72 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,352,635 issued to Tu, *et al.* ("Tu"). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 recites, *inter alia*,

depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

Tu fails to teach or suggest at least these features. More specifically, Tu is directed towards anodic formation of porous silicon, for example and illustration purposes only, Tu discloses at col. 5, ll. 14-29,

[i]n the preferred embodiment the anodization is performed in a teflon electrochemical cell. The cell is filled with hydrofluoric acid solution. The substrate to be anodized is placed vertically into the cell in the middle of the cell and separates the cell into two parts. Each part of the cell has a platinum electrode facing a surface of the substrate. The back side of the substrate faces the anodic electrode and the front side faces the cathode electrode.

The interface between the substrate and the solution has a rectifying nature such as it allows current to flow in one direction and acts as a barrier for current flowing in the opposite direction. Thus at an appropriate anodic voltage the anodic current can enter the buried low resistance layer but not the high resistance regions. After all the low resistance silicon converts into porous silicon, the anodization can stop automatically.

Tu does not teach or suggest depositing a layer having a non-helical columnar structure as set forth in claim 1. Accordingly, Applicants respectfully submit that claim 1 and claims 2, 10-12, 14-16, 18, 20, 21, and 34, which depend from claim 1, are allowable.

Claim 37 recites, *inter alia*,

forming a layer of high surface area to volume ratio material
having a non-helical columnar structure onto a said substrate.

There is no teaching or suggestion for forming a layer having a non-helical columnar structure as set forth in claim 37. Accordingly, Applicants respectfully submit that claim 37 and claims 41-50, which depend from claim 37, are allowable.

Claim 57 recites, *inter alia*,

forming a layer of high surface area to volume ratio material over a
substrate having a non-helical columnar structure.

There is no teaching or suggestion for forming a layer having a non-helical columnar structure as set forth in claim 57. Accordingly, Applicants respectfully submit that claim 57 and claims 61, 64, 66, 68, and 72, which depend from claim 57, are allowable.

Applicants requests that rejection under 35 U.S.C. § 102 be withdrawn as a *prima facie* case of anticipation has not been established.

Rejections Under 35 U.S.C. § 103

Claims 3-8, 38-40 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Tu in view of “Nanocrystalline Si thin films with arrayed void-column network deposited by density plasma” issued to Kalkan, *et al.* (“Kalkan”) or U.S. Patent No. 6,248,422 issued to Robbie, *et al.* (“Robbie”). Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 1. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons set forth below.

Claims 38-40 by virtue of their dependencies from claim 37 include all the features of claim 37. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 37. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons set forth below.

Claims 58-60 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 57. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons set forth below.

More specifically, Applicants respectfully submit that the effective date of Kalkan is July 1, 2000, which is later than April 17, 2000, the effective filing date of the present Application, which claims priority benefit of U.S. Provisional Patent Application No. 60/201,937, filed May 5, 2000; U.S. Provisional Application No. 60/197,548, filed April 17, 2000; U.S. Provisional Application No. 60/208,197, filed May 31, 2000; U.S. Provisional Application No. 60/215,538, filed June 30, 2000; U.S. Provisional Application No. 60/231,626, filed September 11, 2000; U.S. Provisional Application No. 60/268,208, filed February 12, 2001; U.S. Provisional Application No. 60/235,794, filed September 27, 2000; U.S. Patent Application No. 09/739,940, filed December 19, 2000; and U.S. Patent Application No. 09/580,105, filed May 30, 2000, all of which are incorporated by reference. Thus, Kalkan is not prior art to the present Application.

Also, Robbie is directed towards microstructure having a film of material extending in distinct helical columns from the substrate. *See Abstract.* For example and illustration purposes only, Robbie discloses at col. 6, ll. 31-35,

a thin film microstructure produced by the process described here with rotation of the substrate about a normal to the substrate. Vapor deposited material extends in distinct (separate from one another) helical columns 70 from the substrate 10. (emphasis added.)

However, with regard to claim 1, Robbie does not teach or suggest, *inter alia*, depositing a layer of high surface area to volume ratio material having a non-helical columnar structure over a surface of said substrate.

With regard to claim 37, Robbie teach or suggest, *inter alia*,

forming a layer of high surface area to volume ratio material
having a non-helical columnar structure onto said substrate.

Also, with regard to claim 57, Robbie does not teach or suggest, *inter alia*,

forming a layer of high surface area to volume ratio material over a
substrate having a non-helical columnar structure.

Rather, Robbie is expressly directed towards helical films formed by rotation of a substrate with slanted shadow sculpted films deposited thereon. Moreover, the type of processing in Robbie has a number of disadvantages over the instant application, for example, the control apparatus for rotation is costly and complex. Accordingly, Robbie fails to cure the deficiencies of Yonehara and Kalkan.

Moreover, Applicants submit that the Examiner impermissibly relies on Applicant's disclosure in the combinations to allegedly arrive at Applicant's claimed invention. More specifically, the Examiner is using impermissible hindsight based on the knowledge obtained solely from Applicant's specification when rejecting the claims under 35 U.S.C. § 103(a).

Accordingly, Applicants respectfully request the rejection under 35 U.S.C. § 103(a) be withdrawn.

Claims 3-8, 38-40 and 58-60 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yonehara in view of Kalkan or U.S. Patent No. 6,248,422 issued to Robbie, *et al.* ("Robbie"). Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Yonehara fails to teach or suggest all the limitations of claim 1. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Yonehara or Kalkan for reasons set forth above.

Claims 38-40 by virtue of their dependencies from claim 37 include all the features of claim 37. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Yonehara fails to teach or suggest all the limitations of claim 37. Additionally, Kalkan is

not prior art to this application and Robbie fails to cure the deficiencies of Yonehara or Kalkan for reasons set forth above.

Claims 58-60 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Yonehara fails to teach or suggest all the limitations of claim 57. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Yonehara or Kalkan for reasons set forth above.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103(a) as *prima facie* case of obviousness has not been established.

Claims 3-8, 38-40 and, 58-60 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Tu in view of Kalkan or Robbie. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 1. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons discussed above.

Claims 38-40 by virtue of their dependencies from claim 37 include all the features of claim 37. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 37. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons discussed above.

Claims 58-60 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 57. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Tu for reasons discussed above.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 3-8, 38-40 and, 58-60 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Steiner in view of Kalkan or Robbie. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Steiner fails to teach or suggest all the limitations of claim 1. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Steiner for reasons discussed above.

Claims 38-40 by virtue of their dependencies from claim 37 include all the features of claim 37. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Steiner fails to teach or suggest all the limitations of claim 37. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Steiner for reasons discussed above.

Claims 58-60 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Steiner fails to teach or suggest all the limitations of claim 57. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Steiner for reasons discussed above.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 3-8, 38-40 and, 58-60 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Xiang-Zheng in view of Kalkan or Robbie. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 1. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Xiang-Zheng for reasons discussed above.

Claims 38-40 by virtue of their dependencies from claim 37 include all the features of claim 37. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 37. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Xiang-Zheng for reasons discussed above.

Claims 58-60 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 57. Additionally, Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Xiang-Zheng for reasons discussed above.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 3-8 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Guilinger in view of Kalkan or Robbie. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 3-8 by virtue of their dependencies from claim 1 includes all the features of claims 1. For similar reasons as discussed above, with respect to the rejections under 35 U.S.C. § 102, Guilinger fails to teach or suggest all the limitations of claim 1. Kalkan is not prior art to this application and Robbie fails to cure the deficiencies of Guilinger for reasons as discussed above.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 9, 13, 24-27, 62-63, and 65 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Tu in view of U.S. Patent No. 5,352,635 issued to Welbourn, *et al.* ("Welbourn"). Applicants respectfully traverse this rejection for at least the following reasons.

Claims 9, 13, and 24-27 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under

35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 1. Welbourn fails to cure the deficiencies of Tu.

Claims 62-63 and 65 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Tu fails to teach or suggest all the limitations of claim 57. Welbourn fails to cure the deficiencies of Tu.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 9, 13, 24-27, 62-63, and 65 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yonehara in view of Welbourn. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 9, 13, and 24-27 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Yonehara fails to teach or suggest all the limitations of claim 1. Welbourn fails to cure the deficiencies of Yonehara.

Claims 62-63 and 65 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Yonehara fails to teach or suggest all the limitations of claim 57. Welbourn fails to cure the deficiencies of Yonehara.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 9, 13, 24-27, 62-63, and 65 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Steiner in view of Welbourn. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 9, 13, and 24-27 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Steiner fails to teach or suggest all the limitations of claim 1. Welbourn fails to cure the deficiencies of Steiner.

Claims 62-63 and 65 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Steiner fails to teach or suggest all the limitations of claim 57. Welbourn fails to cure the deficiencies of Steiner.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 9, 13, 24-27, 62-63, and 65 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Xiang-Zheng in view of Welbourn. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 9, 13, and 24-27 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 1. Welbourn fails to cure the deficiencies of Xiang-Zheng.

Claims 62-63 and 65 by virtue of their dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 57. Welbourn fails to cure the deficiencies of Xiang-Zheng.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 67 and 97 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Xiang-Zheng in view of U.S. Patent No. 6,048,734 issued to Burns, *et al.* ("Burns"). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 67 by virtue of its dependency from claim 57 includes all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 57. Burns is directed towards thermal microvalves in a fluid flow and fails to cure the deficiencies of Xiang-Zheng.

Claim 97 includes all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng fails to teach or suggest all the limitations of claim 1. Burns fails to cure the deficiencies of Xiang-Zheng.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claims 28 and 70-71 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Xiang-Zheng or Steiner or Tu. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 28 by virtue of its dependency from claim 1 includes all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng, Steiner or Tu fail to teach or suggest all the limitations of claim 1.

Claims 70 and 71 by virtue of its dependencies from claim 57 include all the features of claim 57. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 102, Xiang-Zheng, Steiner or Tu fail to teach or suggest all the limitations of claim 57.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

Claim 19 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Xiang-Zheng in view of Burns. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 19 by virtue of its dependency from claim 1 includes all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Xiang-Zheng fails to teach or suggest all the limitations of claim 1. Additionally, Burns fails to cure the deficiencies of Yonehara.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

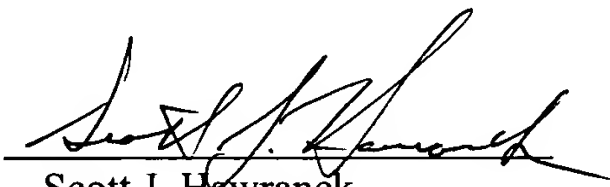
Claims 19 and 23 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yonehara in view of Burns. Applicants respectfully traverse this rejection for at least the following reasons.

Claims 19 and 23 by virtue of their dependencies from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Yonehara fails to teach or suggest all the limitations of claim 1. Additionally, Burns fails to cure the deficiencies of Yonehara.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

The Commissioner is hereby authorized to charge any fees connected with this filing which may be required now, or credit any overpayment to Deposit Account No. 19-2380.

Respectfully submitted,

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